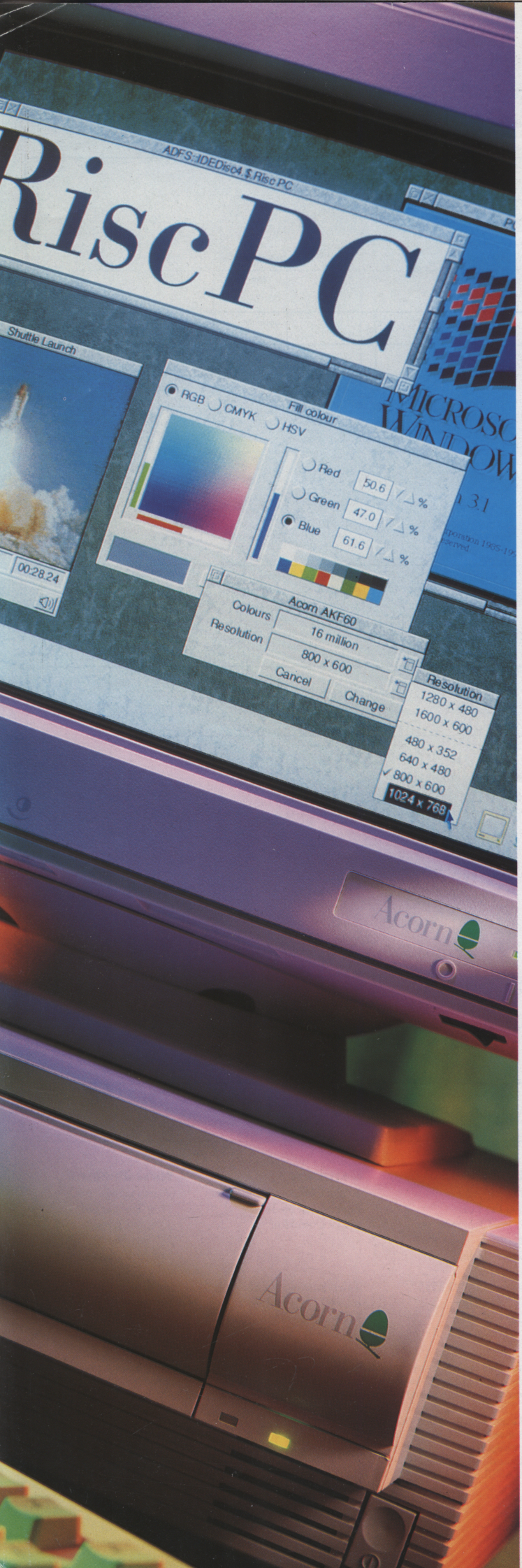

Data Sheet 6
Multi-processor Open Bus

April 1994

The ARM processor in the Acorn Risc PC is mounted on a daughter card, and connected to the PCB via a 96-way DIN socket, in much the same way that the ARM3 processor was mounted in the A540. The big difference in the Acorn Risc PC is that alongside is an identical connector for a **second** processor card. The Acorn Risc PC is the first Acorn platform to offer support for more than one bus master - that is to say a second CPU can be connected to the system alongside the first. A new set of ARM data, address and control signals support a second processor on the processor bus, which is known as Open Bus.

The second processor is able to share resources such as memory and I/O with the main processor, which means that it is no longer necessary to provide duplicate memory and I/O systems when fitting a second processor. This has obvious benefits in cost, space and power consumption.

Any processor may be used, provided that its card contains all necessary arbitration logic, as the host card only contains the ARM itself and clock generation. The second processor card must also convert its own bus protocol to that of the Open Bus, which will usually be performed by an Application Specific IC (ASIC). A handshaking protocol has been implemented on the processor bus, with provision for semaphore interlock to prevent bus contentions.

The second processor can be another ARM, to provide a degree of parallel computation, or used for a dedicated task (such as DSP engine, network management or graphics pre-processing). Alternatively, the second bus master can be a 'foreign' CPU, such as one of the Intel 80 x 86 processor family.

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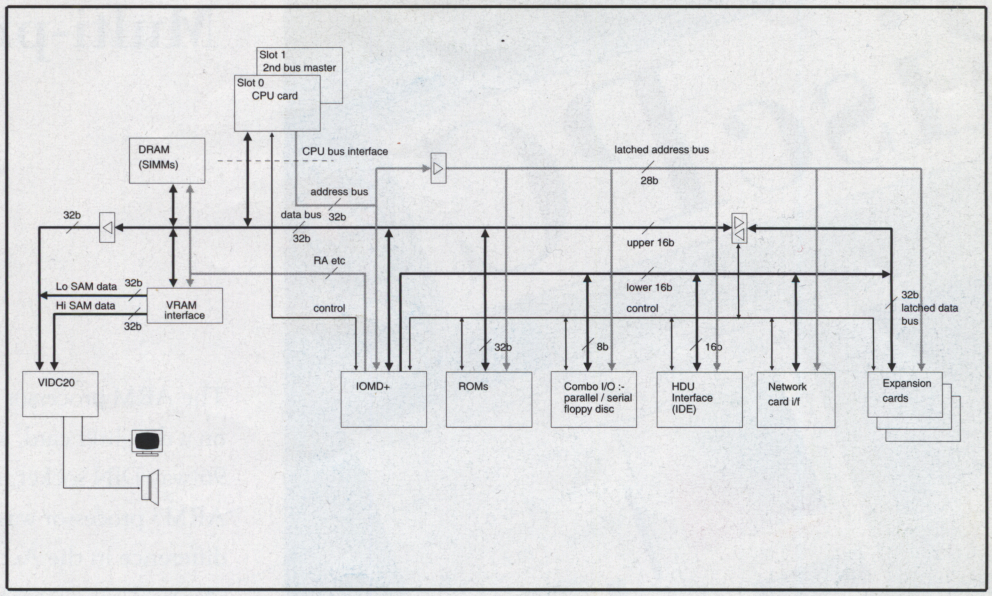
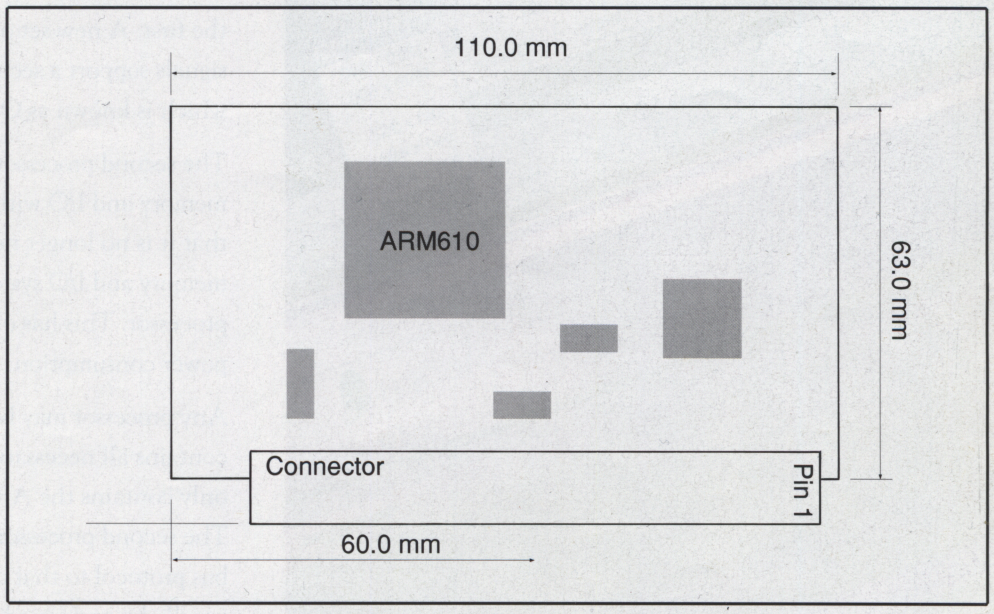
Because both cards have full access to the computer's resident memory and I/O, an 80 x 86 processor permits a very cost-effective and high-performance DOS, windows or OS/2 support system to be implemented. Other applications might be a DSP processor for speech, I/O, image processing, or an application-specific device such as an MPEG video processor.

The block diagram for the Risc PC below shows the way the bus communicates with the system as a whole:



Processor card dimensions:



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